REMARKS

Claim 1 and claims 3 through 9 are pending in the subject application. Claim 1 and claims 3-9 stand rejected under 35 U.S.C. 103(a).

The Applicants appreciate the Examiner's thorough examination of the subject application and respectfully request reconsideration of the subject application based on the following remarks.

35 U.S.C. § 103(a) REJECTION

The Examiner has rejected claims 1, 6, 8, and 9 under 35 USC 103(a) as unpatentable over U.S. Patent Number 6,377,321 to Khan, et al. ("Khan" or the "Khan Reference") in view of Japanese Published Laid-Open Patent Application JP 06-102485A ("Okada" or the "Okada Reference") and U.S. Patent Number 6,351,299 to Takiguchi, et al.("Takiguchi" or the "Takiguchi Reference"); claim 3 under 35 USC 103(a) as unpatentable over Khan in view of Okada and Takiguchi further in view of U.S. Patent Number 6,414,669 to Masazumi ("Masazumi" or the "Masazumi Reference"); claims 4 and 5 under 35 USC 103(a) as unpatentable over Khan in view of Okada and Takiguchi further in view of U.S. Patent Number 4,632,514 to Ogawa, et al. ("Ogawa" or the "Ogawa Reference"); and claim 7 under 35 USC 103(a) as unpatentable over Khan in view of Okada further in view of U.S. Patent Number 5,880,801 to Scherer, et al. ("Scherer" or the "Scherer Reference"). The Applicants respectfully traverse these rejections in view of the above amendment and for the reasons provide below.

Claims 1, 6, 8, and 9

The Examiner again admits that the Khan reference does not teach varying the thickness of the cell gap in the different regions of a common LC layer, relying on the

teachings of Okada to teach varying thickness gradients to achieve different threshold voltages in different regions of the LC layer. The Examiner further admits that, neither Khan nor Okada teach that the thickness of the liquid crystal layer d satisfies the relationship $1<d/P<15$ where P corresponds to the helical pitch of the helical structure. However, the Examiner now maintains that, Takiguchi teaches a "d/P ratio" of about 1.94, which, according to the Examiner, is in the claimed range. The Applicants respectfully disagree.

In re Peterson provides that a *prima facie* case of obviousness exists if the ranges of a claimed composition overlap the ranges disclosed in the prior art or, alternatively, the ranges of the claimed composition do not overlap but are close enough such that one skilled in the art would expect them to have the same properties. In re Peterson, 65 USPQ2d 1379, 1382 (Fed. Cir. 2003). Applicants may rebut a *prima facie* case of obviousness by showing that claimed range is critical; by showing that the claimed range achieves unexpected results; or by showing that the prior art teaches away from the claims invention. Id., 65 USPQ2d at 1383-4.

Takiguchi teaches that,

> a liquid crystal display device including a cholesteric liquid crystal layer which has an intrinsic helical pitch of approximately twice as large as a thickness of a liquid crystal layer.

Takiguchi, col. 3, lines 41-44 (Emphasis added). Citing Japanese Patent H1-51818, Takiguchi further provides that an intrinsic helical pitch of approximately twice as large as a thickness of a liquid crystal layer was known to the art. There is nothing further in Takiguchi to suggest that the ratio of the helical pitch to the thickness of the LC layer would be anything but about 2. Indeed, Example 2 of the Takiguchi reference, cited by the Examiner provides a P/d ratio of about 1.94, which is "approximately twice as large". Example 1 provides a P/d ratio of exactly 2, which is "approximately twice as large".

Claim 1, however claims that the d/P ratio is greater than 1 and less than 15. Takiguchi teaches a P/d ratio, which is the reciprocal of d/P, of about 2, which corresponds to a d/P ratio of about 0.5, which is less than and outside of the lower boundary of the range recited in claim 1 of the present invention. According to the present invention, when the d/P ratio is less than 1

> the selective reflection intensity in the planar state and the scattering intensity in the focal conic state are excessively weak, thereby undesirably reducing the contrast ratio.

Specification, page 24, lines 21-24. In short, Takiguchi's teaches a d/P ratio that falls outside of the range claimed in the present invention and, therefore, the Examiner has not made a *prima facie* case of obviousness. To the extent that a d/P ratio of 0.5 could be considered "close enough" to the lower limit of 1 recited in the claim to establish a *prima facie* case, clearly Takiguchi teaches away from the present invention and the present invention teaches away from a d/P of 2.

Accordingly, the Applicants assert that the claims 1, 6, 8, and 9 are not made obvious by the cited references and, further, satisfy the requirements of 35 U.S.C. 100, et seq., especially § 103(a). As such, the Applicants believe that the claims are allowable. Moreover, it is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

Claim 3

Nor can the Masazumi reference make up for the deficiencies of the Khan, Okada, and Takiguchi references. Indeed, Masazumi does not teach, mention or suggest a plurality of pixels with a LC layer having at least two different thickness values and including at least two different regions having different threshold voltage values for transitioning from a planar to a focal conic state or that the thickness of the

liquid crystal layer d satisfies the relationship 1<d/P<15 where P corresponds to the helical pitch of the helical structure.

Accordingly, the Applicants assert that the claim 3 is not made obvious by the cited references and, further, satisfies the requirements of 35 U.S.C. 100, et seq., especially § 103(a). As such, the Applicants believe that the claim is allowable. Moreover, it is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

Claims 4 and 5

Nor can the Ogawa reference make up for the deficiencies of the Khan, Okada, and Takiguchi references. Indeed, Ogawa does not teach, mention or suggest a plurality of pixels with a LC layer having at least two different thickness values and including at least two different regions having different threshold voltage values for transitioning from a planar to a focal conic state or that the thickness of the liquid crystal layer d satisfies the relationship 1<d/P<15 where P corresponds to the helical pitch of the helical structure.

Accordingly, the Applicants assert that the claims 4 and 5 are not made obvious by the cited references and, further, satisfy the requirements of 35 U.S.C. 100, et seq., especially § 103(a). As such, the Applicants believe that the claims are allowable. Moreover, it is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

Claim 7

Nor can the Scherer reference make up for the deficiencies of the Khan, Okada, and Takiguchi references. Indeed, Scherer does not teach, mention or suggest a plurality of pixels with a LC layer having at least two different thickness values and
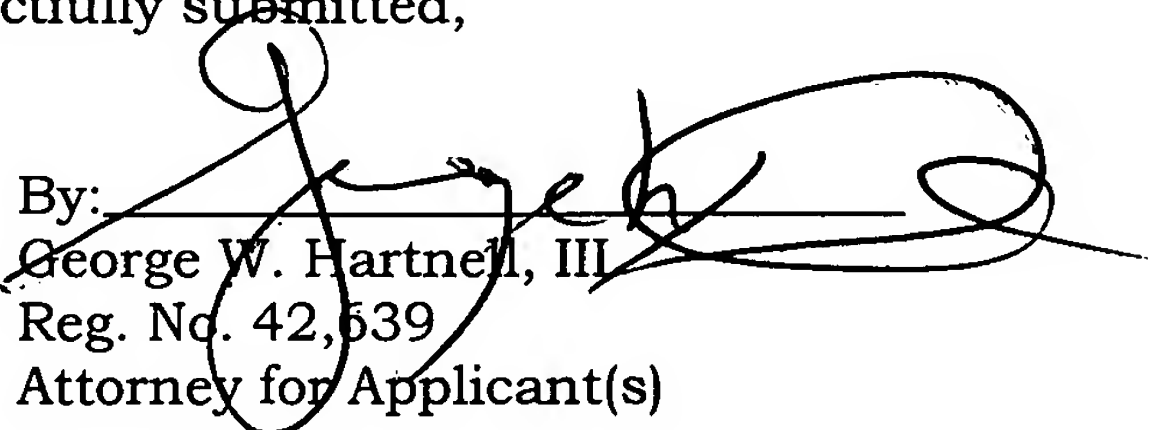
including at least two different regions having different threshold voltage values for transitioning from a planar to a focal conic state or that the thickness of the liquid crystal layer d satisfies the relationship $1<d/P<15$ where P corresponds to the helical pitch of the helical structure.

Accordingly, the Applicants assert that the claim 7 is not made obvious by the cited references and, further, satisfies the requirements of 35 U.S.C. 100 et seq., especially § 103(a). As such, the Applicants believe that the claim is allowable. Moreover, it is respectfully submitted that the subject application is in condition for allowance. Early and favorable action is requested.

The Applicants believe that no additional fee is required for consideration of the within Response. However, if for any reason the fee paid is inadequate or credit is owed for any excess fee paid, you are hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,

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